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CPY - KAOS  
- SUMR  
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MC - A03-B A09-A A10-C03 A10-E06 A10-G01B A12-H02 A12-T01 G03-B02B G03-B02D1  
PA - (KAOS ) KAO CORP  
- (SUMR ) SUMITOMO RUBBER IND LTD  
PN - JP3294903B2 B2 20020624 DW200243 C08C19/00 006pp  
- JP6329702 A 19941129 DW199507 C08C19/00 007pp  
PR - JP19930121636 19930524  
XA - C1995-022146  
XIC - C08C-019/00 ; C08C-019/06 ; C08F-008/00 ; C08F-008/08  
AB - J06329702 Modified natural rubbers are prepd. by grafting with  
monomers e.g. methacrylates, acrylates, acrylonitrile, or epoxidation  
with peracids, of natural rubbers having proteins removed by  
biodegradation and washing with detergents at less than 0.1 wt.% of N  
content, representing no IR absorbance at 3280 cm<sup>-1</sup>.  
- USE/ADVANTAGE - Used as e.g. adhesives and inner lines of tyres or  
hoses. By removing proteins, natural rubbers are modified efficiently  
and show improved properties, e.g. adhesion by grafting, or oil  
resistance and gas permeability by epoxidation, eliminating allergic  
action of natural rubber.  
- In an example, a natural rubber latex with 60.2% rubber component was  
treated at 37 deg. C for 24 hr. by a proteolytic enzyme, Alkalase 2.0M,  
1% nonionic detergent soln. was added to adjust concn, to 8% rubber  
and centrifuged at 11,000 rpm. for 30 min. By 3 recentrifuge  
treatments of the creamy prod. suspended in 1% detergent soln. in  
distilled water, rubber with 0.008% of N content and no absorbance at  
3280 cm<sup>-1</sup> was obtd. A latex of 60 wt.% of the rubber was grafted by  
methyl methacrylate using tert. butyl peroxide-tetraethylene pentamine  
redox system at 30 deg. C for 3 hr. to obtain natural rubber with 33.4  
wt.% of grafted monomers. (Dwg. 0/0)  
IW - PREPARATION MODIFIED NATURAL RUBBER COMPRISE GRAFT NATURAL RUBBER  
PROTEIN REMOVE MONOMER METHO EPOXIDATION  
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PROTEIN REMOVE MONOMER METHO EPOXIDATION  
NC - 001  
OPD - 1993-05-24  
ORD - 1994-11-29  
PAW - (KAOS ) KAO CORP  
- (SUMR ) SUMITOMO RUBBER IND LTD  
TI - Prepn. of modified natural rubbers - comprising grafting natural  
rubbers, having proteins removed, with monomers e.g. (meth)acrylates,  
or epoxidation with peracids  
A01 - [001] 017 ; R24073 D01 D02 D03 D12 D10 D51 D53 D59 D85 P0599 H0124  
B5061 ; G0340-R G0339 G0260 G0022 D01 D12 D10 D51 D53 D58 D63 F41  
G0384-R H0146 ; R00479 G0384 G0339 G0260 G0022 D01 D11 D10 D12 D51

D53 D58 D63 D85 F41 H0146 ; R00817 G0475 G0260 G0022 D01 D12 D10 D51  
 D53 D58 D83 F12 H0146 ; H0088 H0011 ; H0124-R ; L9999 L2528 L2506 ;  
 L9999 L2551 L2506 ; S9999 S1025 S1014 ; P0088 ;  
 - [002] 017 ; ND03 ; ND07 ; N9999 N6893 N6655 ; N9999 N6882 N6655 ;  
 B9999 B4535 ; B9999 B4251 B4240 ; K9836 K9790 ; Q9999 Q6644-R ;  
 Q9999 Q7830 ; Q9999 Q8731 Q8719 ; K9574 K9483 ; K9687 K9676 ;  
 B9999 B4488 B4466 ;  
 - [003] 017 ; B9999 B5301 B5298 B5276 ;  
 - [004] 017 ; R00899 D01 D11 D10 D50 D88 F48 ; R00934 D01 D11 D10 D50  
 D88 F10 F07 ; C999 C099 C088 C000 ; C999 C293 ;  
 A02 - [001] 017 ; R24073 D01 D02 D03 D12 D10 D51 D53 D59 D85 P0599 H0124  
 B5061 ; H0124-R ; P0464-R D01 D22 D42 F47 ; M9999 M2175 ; L9999  
 L2391 ; L9999 L2175 ; S9999 S1025 S1014 ;  
 - [002] 017 ; ND03 ; ND07 ; N9999 N6893 N6655 ; N9999 N6882 N6655 ;  
 B9999 B4535 ; B9999 B4251 B4240 ; K9836 K9790 ; Q9999 Q6644-R ;  
 Q9999 Q7830 ; Q9999 Q8731 Q8719 ; K9574 K9483 ; K9687 K9676 ;  
 B9999 B4488 B4466 ;  
 - [003] 017 ; B9999 B4671 B4568 ; B9999 B3496 B3485 B3372 ; B9999  
 B4864 B4853 B4740 ; B9999 B4875 B4853 B4740 ;